



## Traveler @ FRIB

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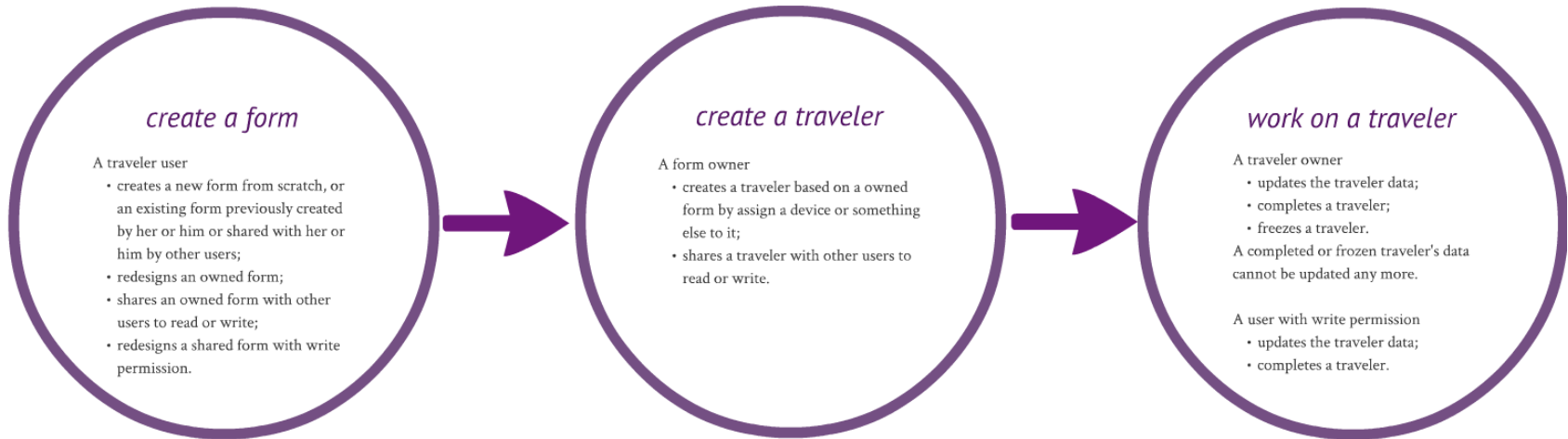
**MICHIGAN STATE**  
UNIVERSITY



U.S. DEPARTMENT OF  
**ENERGY**

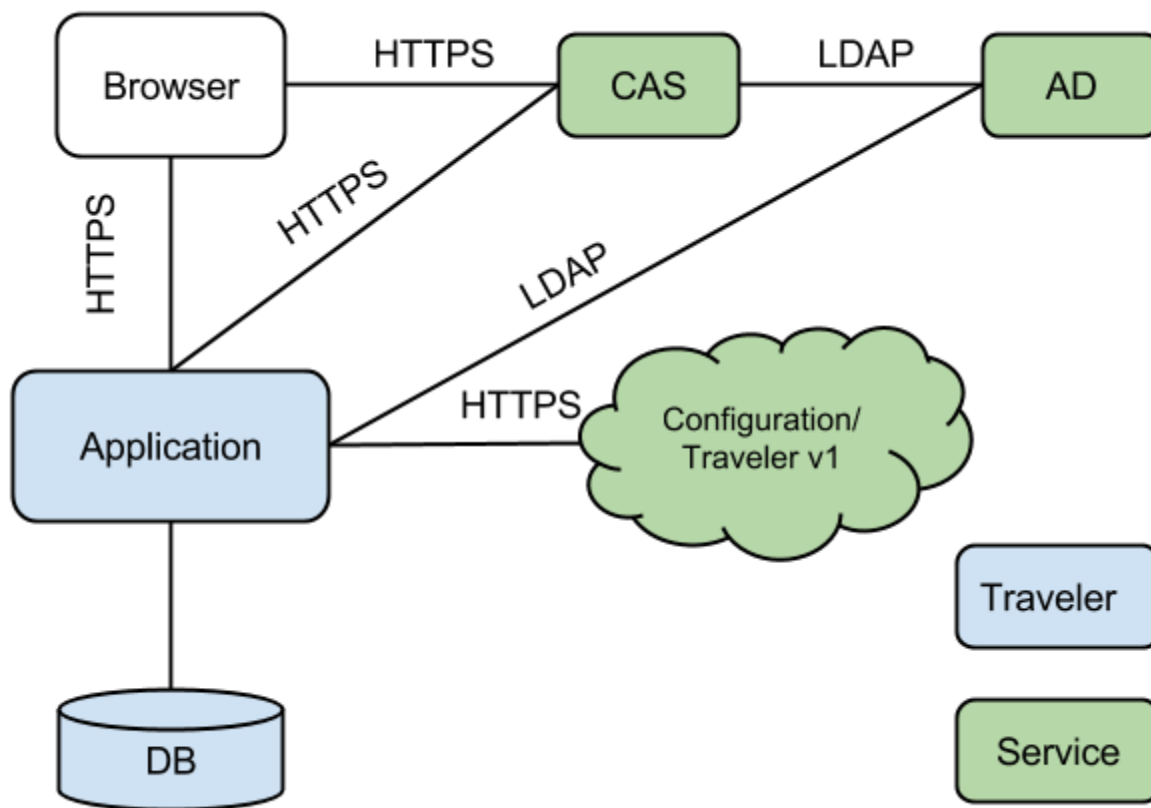
Office of  
Science

# Traveler workflow



[http://prezi.com/x\\_dsx1fpzboy/?utm\\_campaign=share&utm\\_medium=copy&rc=ex0share](http://prezi.com/x_dsx1fpzboy/?utm_campaign=share&utm_medium=copy&rc=ex0share)

# Application architecture



# Technology stack

- Node.js (<https://nodejs.org/>)
- Express.js (<http://expressjs.com/> 3.1.0 needs upgrade)
- bootstrap (<http://getbootstrap.com/> 2.3 needs upgrade)
  - Jade (<http://jade-lang.com/>) for template
- jQuery (<https://jquery.com/> 1.9)
- Datatables (<https://www.datatables.net/> 1.9.4 needs upgrade)
- Twitter typeahead (<http://twitter.github.io/typeahead.js/>)
- Form binder (<https://github.com/dongliu/formbinder>)
- Form builder
  - Rivets.js (<http://www.rivetsjs.com/>)
- CAS for authentication (<https://github.com/rubycas/rubycas-server>)
- MongoDB/mongoose.js (<https://www.mongodb.org/> <http://mongoosejs.com/>)

# node + mongo

- JSON from DB to application to client
  - No ORM (++)
  - Hard to support other format (-)
- No threading and synchronized/.concurrent.
  - Almost no chance for racing/deadlock (+++)
  - Callback hell (--)
- Flexible data structure
  - Support array of anything (++)
  - Easy schema change and back compatible (+++)
  - Loose validation(--+)
  - Duplication and inconsistency (--+)

# Paradigm shifts

- desktop app -> network and mobile app (client/server)
- local library -> network API
- local call -> RPC -> messaging, event-driven, REST
- synchronous -> asynchronous
- purely object-oriented -> functional
- basic client -> rich client
- heavy static framework -> light dynamic framework/language
- relational -> unstructured
- one-size-fits-all -> diversity

# Design and development process

## ■ Resources

- Interface first for testing
- View -> Model -> Controller
  - » HTML/CSS -> test -> DOM/JavaScript -> test -> XHR -> test -> GET /model -> test -> POST/PUT /model -> test -> DELETE /model -> test
- Most resource loaded via JSON/HTTP -> API

## ■ Responsive design

- Better user experience on different screens
- Mobile client friendly

## ■ Reactive design

- Render only partial page when possible
- Lightweight model view viewmodel (MVVM)
- Push lightweight processing tasks to the client



# TODO



## Manage and collaborate.

With forms, travelers, and reports. [Need help?](#)



Design Forms.



Collect Data.



Manage and Report.

- Restructure the application for reporting feature
  - User defined traveler groups for tracking and reporting
  - User interfaces for form/traveler/report



# Traveler resources

## ■ Source

- <https://github.com/dongliu/traveler>

## ■ Design documents

- <https://drive.google.com/file/d/0B39LbIQJq1dreEJSaVJ2TGRCMzA>
- <https://drive.google.com/file/d/0B39LbIQJq1drRkE4YV9mVI84Wjg>
- <https://docs.google.com/document/d/12p4eO0b-Bv3jGVLsbYzMU0IeYa-xHX6r9DYDpn2Udrs/edit?usp=sharing>

## ■ Manuals

- [https://docs.google.com/document/d/1I9YY2\\_czQ193zDv8mIhRMFYIpaMgfGyHr23EwrJ2FLM/pub](https://docs.google.com/document/d/1I9YY2_czQ193zDv8mIhRMFYIpaMgfGyHr23EwrJ2FLM/pub)
- <http://rawgit.com/dongliu/traveler/master/public/about.html>
- <http://rawgit.com/dongliu/traveler/master/public/api.html>

# Form builder

test1

label ☐ checkbox text

test area inside the input

some hint...

Edit/copy/delete

Label test area Keep the label brief and unique

Placeholder inside the input

Row 3

Help some hint...

Done

What you see is what you get

test

the form self



Rich editor: Link, image, special characters ...

label

# Main user interface

Controls

Traveler

Report a problem

Logout

FRIB

New Form

All travelers

Reload

Meta

Profile

Users

About

My forms

Shared forms

Group shared forms

My travelers

Shared travelers

Group shared travelers

Initial travelers

Active travelers

Complete travelers

Frozen travelers

Archived travelers

Copy

Print

Save

10 records per page

Search:

	Title	Status	Devices	Shared with	Shared groups	Created by	Created	Deadline	Updated by	Updated	Estimated progress
	LIN-CMAS53-CAVH-ASSY	active	S53002			victory	2 hours ago		victory	31 minutes ago	<div><div></div>7/46</div>
	SRF Facility Weekly Maintenance	active		Whaley, Joseph; Clark, Alex; Whetstone, Caleb; Metzgar, Ethan; Victory, Daniel; Malloch, Ian; Barker, Brian; Popielarski, Laura; Ignatowski, Daniel; Oja, Byron; Elliott, Kyle; Dobrzynski, Alyssa; Brunk, Ryan		ignatows	4 hours ago		ignatows	43 minutes ago	<div><div></div>8/73</div>
	LIN-CMAS53-CAVH-HPR'	active	S53-002		LAB.FRIB.ASD.SRF; LAB.FRIB.ASD.SRF.CavityProcessing	malloch	3 days ago		victory	3 days ago	<div><div></div>13/20</div>
	LIN-CMAS29-CAV-BETCH	active	S29-001		LAB.FRIB.ASD.SRF; LAB.FRIB.ASD.SRF.CavityProcessing	malloch	3 days ago		malloch	2 hours ago	<div><div></div>22/28</div>
	LIN-CMAS53-CAVH-ASSY	active	53-002			victory	3 days ago		victory	3 days ago	<div><div></div>9/46</div>
	LIN-CMAS.085-CAV-USC DEGREASE	active	S85-004			barkerbr	4 days ago		barkerbr	4 days ago	<div><div></div>6/8</div>
	LIN-CMAS53-CAVH-HPR'	active	S53-002		LAB.FRIB.ASD.SRF; LAB.FRIB.ASD.SRF.CavityProcessing	malloch	4 days ago		malloch	4 days ago	<div><div></div>17/20</div>
	Beta = .041 Manufacturing Router	active	S41-015			velianof	4 days ago		velianof	4 days ago	<div><div></div>1/54</div>
	LIN-CMAS.085-CAV-CR PREP INSPECT	active	S85-003			barkerbr	5 days ago		barkerbr	4 days ago	<div><div></div>10/43</div>
	Beta = .041 Manufacturing Router	active	S41-013			velianof	5 days ago		velianof	5 days ago	<div><div></div>1/54</div>
	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>			<input type="text"/>		

Showing 1 to 10 of 79 entries

← Previous

1

2

3

4

5

Next →

Release 2.3.8

# Traveler share

Controls **Traveler** Report a problem Logout

FRIB

## Shared user list for Traveler demo traveler

☐ Write

10 records per page

Search:

	User id	Full name	Privilege
<input type="checkbox"/>	elliott	Elliott, Kyle	write
<input type="checkbox"/>	compton	Compton, Chris	read

Showing 1 to 2 of 2 entries

← Previous 1 Next →

## Shared group list for Traveler demo traveler

☐ Write

10 records per page

Search:

	Group name	Privilege
No data available in table		

Showing 0 to 0 of 0 entries

← Previous Next →

Release 2.3.8

# Traveler page

The screenshot shows the 'Traveler' page in a web application. The top navigation bar includes 'Controls', 'Traveler', 'Report a problem', and 'Logout'. A 'FRIB' logo is in the top right. A green notification bar at the top says 'Note saved a few seconds ago'. The main content area is titled 'Traveler title: demo traveler' and shows 'Status: active' and 'Devices: ReA3-085-FPC5'. Below this are buttons for 'Submit for completion', 'Show validation', 'Hide validation', 'Show notes', 'Hide notes', and 'Details'. A 'Summary' section lists fields like 'experiment date', 'copy', 'test', 'long', and 'image' with their current values and user input status. A 'Description' section contains a text area with 'I want ... f asdfas' and a timeline of updates. The bottom section, titled 'first', contains a form with multiple rows for 'experiment date', 'copy', 'test', and 'long', each with input fields, validation status, and a history of changes. Annotations with orange boxes and lines point to specific elements: 'Side Nav' points to the left sidebar; 'Summary with validation code' points to the 'Summary' section; 'History' points to the 'history' text in the first row of the 'first' section; 'Notes' points to the 'notes' text in the first row of the 'first' section; and 'Message' points to the green notification bar at the top.

Controls Traveler Report a problem Logout

FRIB

Note saved a few seconds ago

Traveler title: demo traveler

Status: active

Devices: ReA3-085-FPC5

Submit for completion Show validation Hide validation Show notes Hide notes Details

**Summary**

experiment date: 2014-12-29  
copy: 2015-03-02  
experiment date: no input from user  
experiment date: no input from user  
test: not checked  
long: test again  
image: no input from user

**Description: I want ... f asdfas**  
Deadline: Monday, March 31st 2014, 12:00:00 am  
Created by liud on Thursday, March 27th 2014, 2:32:11 pm  
Updated by liud on Monday, May 18th 2015, 2:05:54 pm

first

experiment date 2014-12-29  
please input the date of your first measurement  
history: changed to 2014-12-29 by liud 5 months ago; changed to test 2 by liud a year ago; changed to test by liud a year ago;  
notes: 1

You noted a few seconds ago:  
test notes

validation passed

copy 2015-03-02  
please input the date of your first measurement  
history: changed to 2015-03-02 by liud 3 months ago; changed to demo by liud a year ago;  
notes: 0  
validation passed

experiment date yyyy-mm-dd  
please input the date of your first measurement  
history: changed to rtete by liud a year ago;  
notes: 0  
validation passed

experiment date yyyy-mm-dd  
please input the date of your first measurement  
history: changed to test by liud a year ago;  
notes: 0  
validation passed

test ☐ confirm the work is done  
notes: 0  
validation passed

long test again

help the user  
history: changed to test again by liud 6 minutes ago; changed to test by liud 11 months ago;  
notes: 0

# Cable main interface

CableControlsLogout

ReloadMetaBar chartAll cablesMy working sheetsUsersSwitch to user viewAbout

To approve

Rejected

Approved

To procure

To install

Installed

Obsoleted

ApproveRejectSelect all in current viewClear selectionWrapUnwrapShow

CopyPrintSave

10 records per page

Search:

		Submitted	Submitted by	project	WBS	Category	Tray section	Cable type	Engineer	Function	Tags	Quantity	From rack	termination device	termination type	wiring drawing	To rack	termination device	termination type	wiring drawing	Conduit	Length(ft)	Comments
<input type="checkbox"/>		3 days ago	barnesb	FRIB	T30710	45H	HVDC	2C_RG-59_Coax_035	Paul Gibson	ION PUMP CTRL		1	C6SB_VAC:CAB_N1510	FS1_BTS:IPC_D2443				FS1_BTS:IP_D2443			FS1-B06-13	100	
<input type="checkbox"/>		3 days ago	barnesb	FRIB	T30710	45H	HVDC	2C_RG-59_Coax_035	Paul Gibson	ION PUMP CTRL		1	C6SB_VAC:CAB_N1510	FS1_BTS:IPC_D2474				FS1_BTS:IP_D2474			FS1-B06-13	100	
<input type="checkbox"/>		3 days ago	barnesb	FRIB	T30909	45H	HVDC	2C_RG-59_Coax_035	Paul Gibson	ION PUMP CTRL		1	C6SB_CTL:CAB_N2225	FS2_BTS:IPC_D4013				FS2_BTS:IP_D4013			FS2-B01-11	100	
<input type="checkbox"/>		3 days ago	barnesb	FRIB	T31106	45H	HVDC	2C_RG-59_Coax_035	Paul Gibson		Ion Pump	1	C6SB_CTL:CAB_N3012	BDS_BTS:IPC_D5657				BDS_BTS:IP_D5657			BDS-B02-14	120	
<input type="checkbox"/>		3 days ago	system	FRIB	T31106	45F	LLS	6C_22AWG_Multi_012	Paul Gibson		Roughing Valve	1	C6SB_VAC:CAB_N1510					BDS_FFS:RV_D5801			FS1-B06-6	120	
<input type="checkbox"/>		3 days ago	system	FRIB	T31106	45F	LLS	6C_22AWG_Multi_012	Paul Gibson		Turbo Gate Valve	1	C6SB_VAC:CAB_N1510					BDS_FFS:TGV_D5801			FS1-B06-6	120	
<input type="checkbox"/>		3 days ago	system	FRIB	T30710	45F	LLS	6C_22AWG_Multi_012	Paul Gibson		Roughing Valve	1	C6SB_VAC:CAB_N1510					FS1_BBS:RV_D2405			FS1-B06-6	100	
<input type="checkbox"/>		3 days ago	system	FRIB	T30710	45F	LLS	6C_22AWG_Multi_012	Paul Gibson		Turbo Gate Valve	1	C6SB_VAC:CAB_N1510					FS1_BBS:TGV_D2405			FS1-B06-6	100	
<input type="checkbox"/>		3 days ago	system	FRIB	T30710	45F	LLS	6C_22AWG_Multi_012	Paul Gibson		Roughing Valve	1	C6SB_VAC:CAB_N1510					FS1_CSS:RV_D2292			FS1-B06-6	100	
<input type="checkbox"/>		3 days ago	system	FRIB	T30710	45F	LLS	6C_22AWG_Multi_012	Paul Gibson		Turbo Gate Valve	1	C6SB_VAC:CAB_N1510					FS1_CSS:TGV_D2292			FS1-B06-6	100	
			Submitte	projec	WBS	Categor	Tray sr	Cable type	Enginee	Function	Tags	Quantity	From rack	termination device	terminatio	wiring c	To r	termination device	terminatio	wiring c	Condui	Length(f	Commen

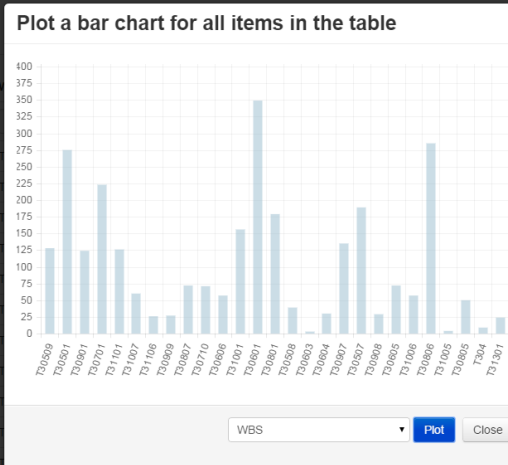
Showing 1 to 10 of 2,756 entries

Previous

12345

Next

# Plot



# User management

Cable Controls Logout

FRIB

Last, First

☐ manager ☐ admin

Add

## User list

Reload users

Modify role

Update profile from AD

Copy Print Save

10 records per page

Search:

User id	Full name	Roles	WBS	Last visited
<input type="checkbox"/> bliton	Bliton, Ryan	manager	T30507,T30604,T30708,T30805,T30907,T31005,T31105,T40506	2 hours ago
<input type="checkbox"/> liud	Liu, Dong	admin		3 hours ago
<input type="checkbox"/> barnesb	Barnes, Bryant	admin,manager		6 hours ago
<input type="checkbox"/> hoff	Hoff, Larry	manager	T31304,T304,T30401,T30402,T40601,T40602,T31301	a day ago
<input type="checkbox"/> kiupel	Kiupel, Gerlind	manager	T30501,T30601,T30701,T30801,T30901,T31001,T31101	4 days ago
<input type="checkbox"/> davidson	Davidson, Kelly	manager	T30506,T30603,T30707,T30804,T30905,T31004,T31103,T40508	6 days ago
<input type="checkbox"/> openland	Openlander, Keith	manager	T31304,T40602	7 days ago
<input type="checkbox"/> gibson	Gibson, Paul	manager	T30509,T30606,T30710,T30807,T30909,T31007,T31106,T40507,T30204	10 days ago
<input type="checkbox"/> morrisd	Morris, Dan	manager	T30508,T30605,T30709,T30806,T30908,T31006	11 days ago
<input type="checkbox"/> schrock	Schrock, Ken	admin		12 days ago

Showing 1 to 10 of 21 entries

Previous 1 2 3 Next



Facility for Rare Isotope Beams  
U.S. Department of Energy Office of Science  
Michigan State University